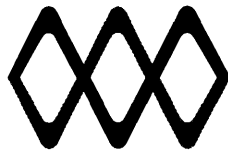


Duluth Teachers' Retirement Fund
ACTUARIAL VALUATION REPORT

July 1, 1999



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November 11, 1999

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Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

RE: Duluth Teachers' Retirement Fund

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1999.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. We have relied on the basic employee data and asset figures as submitted by the Duluth Teachers' Retirement Fund Association.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission.

Respectfully submitted,

MILLIMAN & ROBERTSON, INC.

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Duluth Teachers' Retirement Fund

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Duluth Teachers' Retirement Fund

Report Highlights

(dollars in thousands)

	07/01/98 Valuation	07/01/99 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	12.30%	12.20%
2. Required Contributions - Chapter 356 % of Payroll	10.24%	9.16%
3. Sufficiency (Deficiency): (A.1. - A.2.)	2.06%	3.04%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$187,482	\$218,698
b. Current Benefit Obligations (Table 8)	\$186,918	\$209,785
c. Funding Ratio: (a/b)	100.30%	104.25%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$187,482	\$218,698
b. Actuarial Accrued Liability (Table 9)	\$197,078	\$220,540
c. Funding Ratio: (a/b)	95.13%	99.16%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$242,665	\$278,561
b. Current and Expected Future Benefit Obligations	\$229,865	\$256,872
c. Funding Ratio: (a/b)	105.57%	108.44%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	1,437	1,509
b. Projected Annual Earnings	\$48,158	\$53,229
c. Average Annual Earnings (Actual \$)	\$33,513	\$35,274
d. Average Age	44.4	44.3
e. Average Service	11.1	10.3
2. Others		
a. Service Retirements (Table 4)	849	880
b. Survivors (Table 5)	50	56
c. Disability Retirements (Table 6)	11	11
d. Deferred Retirements (Table 7)	155	165
e. Terminated Other Non-vested (Table 7)	563	539
f. Total	1,628	1,651

Commentary

Purpose

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

Report Highlights

The financial status of the Plan can be measured by three different funding ratios:

- The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 104.25%. The corresponding ratio for the prior year was 100.30%
- The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 1999 the ratio is 99.16%, which is an increase from the 1998 value of 95.13%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 108.44% verifies that the current statutory contributions are sufficient.

Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E1 to E6. It combines the cost value of the Assets Available for benefits and one-third of the difference between the market value and cost value of those assets.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets", the latter phrase will be used in the remainder of this report.

Reference to the Minnesota Post-Retirement Investment Fund (MPRIF) is for purposes of consistency. The fund does not participate in the MPRIF and, therefore, where the term MPRIF appears, there will be a value of zero.

Actuarial Balance Sheet (Table 8)

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated as follows:

- For Active Members – Salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- For Non-Active Members – The discounted value of benefits, including augmentation in cases where benefits have not commenced.

GASB Disclosure

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superseded by Statement No. 25. Tables 14 and 15 of this report are included to fulfill the new requirements of Statement No. 25.

Actuarial Cost Method (Table 9)

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the

remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

The payments will increase 5.00% each year because that is the assumed rate of increase in payroll. Although the payment schedule will be adequate to amortize the existing unfunded, the lower payments in the earlier years will not be sufficient to cover the interest on the unfunded liability. After a few years, the annual payment will cover the interest and also repay a portion of the unfunded.

Source of Actuarial Gains and Losses (Table 10)

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectations. For a detailed analysis of the major components, refer to Table 10.

As anticipated last year, there is a source of modest loss which deserves special mention. The valuation assumes that each year salaries of teachers will increase according to the scale in Table 12. The Duluth teachers union has negotiated a new contract with the Board. Since the old contract expired over one year prior to the valuation date last year, the reported salaries did not reflect any increases in pay. That situation produced significant gains in the valuation results for last year. The situation has reversed itself with the new contract providing for retroactive pay increases. This has resulted in a loss compared to last year.

Contribution Sufficiency (Table 11)

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

Table 11 shows the Plan has a contribution sufficiency since the Statutory Contribution Rate is 12.20% compared to the Required Contribution Rate of 9.16%.

Changes in Plan Benefits

There were no significant changes in plan benefits which would impact the actuarial valuation results.

TABLE 1

Duluth Teachers' Retirement Fund

Statement of Plan Net Assets
(dollars in thousands)

JULY 1, 1999

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS IN TRUST		
1. Cash, Equivalents, Short-term Securities	\$33,256	\$33,256
2. Fixed Income	97,931	98,562
3. Equity	124,543	87,143
4. Real Estate and Mortgage Loans	4,216	4,216
5. Equity in MPRIF	0	0
6. Invested Securities Lending Collateral	43,598	43,598
7. Other	506	506
Subtotal	<u>\$304,050</u>	<u>\$267,281</u>
B. ASSETS RECEIVABLE	10,299	10,299
C. LIABILITIES		
1. Invested Securities Lending Collateral	(43,598)	(43,598)
2. Other	(27,540)	(27,540)
Subtotal	<u>(71,138)</u>	<u>(71,138)</u>
D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
1. MPRIF Reserves	0	0
2. Member Reserves	24,596	24,596
3. Other Non-MPRIF Reserves	218,615	181,846
4. Total Assets Available for Benefits	<u>\$243,211</u>	<u>\$206,442</u>
<hr/>		
E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D4)		\$206,442
2. Market Value (D4)	\$243,211	
3. Cost Value (D4)	206,442	
4. Market Over Cost: (E2-E3)	<u>\$36,769</u>	
5. One-third of Market Over Cost: (E4)/3		12,256
6. Actuarial Value of Assets (E1+E5) (Same as "Current Assets")		<u><u>\$218,698</u></u>

TABLE 2

Duluth Teachers' Retirement Fund

Statement of Change In Plan Net Assets*(dollars in thousands)*

YEAR ENDING JUNE 30, 1999

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$225,757	\$168,345
B. ADDITIONS		
1. Member Contributions	\$3,118	\$3,118
2. Employer Contributions	3,021	3,021
3. Contributions From Other Sources	486	486
4. MPRIF Income	0	0
5. Net Investment Income		
a. Interest and Dividends	7,549	7,549
b. Net Realized Gain (Loss)	36,248	36,248
c. Net Change in Unrealized Gain (Loss)	(20,643)	0
d. Investment Expenses	(1,051)	(1,051)
Net Subtotal	<u>22,103</u>	<u>42,746</u>
6. Other	196	196
7. Total Additions	<u>\$28,924</u>	<u>\$49,567</u>
C. OPERATING EXPENSES		
1. Service Retirements paid from MPRIF	\$0	\$0
2. Service Retirements paid from plan assets	10,226	10,226
2. Disability Benefits	138	138
3. Survivor Benefits	562	562
4. Refunds	186	186
6. Administrative Expenses	358	358
7. Other	0	0
8. Total Disbursements	<u>\$11,470</u>	<u>\$11,470</u>
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u><u>\$243,211</u></u>	<u><u>\$206,442</u></u>

TABLE 3

DULUTH TEACHERS' RETIREMENT FUND**ACTIVE MEMBERS AS OF JUNE 30, 1999**

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	25	14	0	0	0	0	0	0	39
25-29	76	74	10	0	0	0	0	0	160
30-34	23	43	39	6	0	0	0	0	111
35-39	18	37	37	34	3	0	0	0	129
40-44	28	44	48	59	19	5	0	0	203
45-49	63	53	43	80	42	46	23	0	350
50-54	18	29	25	48	34	39	72	19	284
55-59	15	11	9	19	16	24	31	47	172
60-64	1	5	7	5	7	12	6	5	48
65+	5	4	0	1	0	2	0	1	13
ALL	272	314	218	252	121	128	132	72	1,509

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	3,688	25,122	0	0	0	0	0	0	11,382
25-29	5,302	25,791	31,872	0	0	0	0	0	16,439
30-34	4,941	28,105	32,964	41,086	0	0	0	0	25,714
35-39	3,342	24,763	31,366	45,991	50,759	0	0	0	29,867
40-44	3,404	25,735	32,752	41,278	51,226	49,605	0	0	31,805
45-49	4,627	26,265	36,828	47,138	50,593	49,680	51,843	0	36,117
50-54	3,926	23,931	36,491	46,381	50,058	49,326	51,872	52,214	43,154
55-59	2,396	12,031	34,513	42,437	46,680	51,111	50,079	53,848	42,686
60-64	1,767	3,001	39,679	34,421	49,065	44,370	57,158	59,015	41,261
65+	6,600	15,872	0	38,993	0	26,465	0	31,417	16,910
ALL	4,401	24,886	34,042	44,684	49,940	48,977	51,686	53,464	33,582

PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE

Age	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
All	1,197	7,814	7,421	11,260	6,042	6,269	6,822	3,849	50,675

DULUTH TEACHERS' RETIREMENT FUND**SERVICE RETIREMENTS AS OF JUNE 30, 1999**

Age	Years Retired							ALL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	1	1	0	0	0	0	2
50-54	2	3	1	0	0	0	0	6
55-59	44	43	1	0	0	0	0	88
60-64	13	90	72	0	0	0	0	175
65-69	2	30	124	48	0	0	0	204
70-74	0	3	44	83	33	1	0	164
75-79	0	1	2	36	50	11	1	101
80-84	0	0	1	2	33	21	5	62
85+	0	0	0	0	0	31	47	78
ALL	61	171	246	169	116	64	53	880

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	4,875	10,265	0	0	0	0	7,570
50-54	10,289	6,912	15,223	0	0	0	0	9,423
55-59	20,988	20,328	11,506	0	0	0	0	20,558
60-64	20,981	17,417	12,875	0	0	0	0	15,813
65-69	9,536	8,333	14,741	9,761	0	0	0	12,576
70-74	0	16,804	12,167	12,042	5,838	4,933	0	10,871
75-79	0	26,787	21,672	9,462	9,436	4,720	5,900	9,311
80-84	0	0	6,919	4,723	7,352	7,027	5,490	7,000
85+	0	0	0	0	0	7,136	9,470	8,542
ALL	20,260	16,342	13,730	10,758	7,820	6,651	9,027	12,542

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	ALL
All	1,235	2,794	3,377	1,818	907	425	478	11,036

DULUTH TEACHERS' RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1999

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	1	0	0	0	1
50-54	0	0	0	0	0	0	0	0
55-59	0	0	1	0	0	0	0	1
60-64	0	2	4	0	0	0	0	6
65-69	0	0	5	5	0	1	0	11
70-74	0	0	3	6	4	1	0	14
75-79	0	0	1	4	5	0	1	11
80-84	0	0	0	0	4	1	0	5
85+	0	0	0	0	0	3	4	7
ALL	0	2	14	16	13	6	5	56

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	3,705	0	0	0	3,705
50-54	0	0	0	0	0	0	0	0
55-59	0	0	13,990	0	0	0	0	13,990
60-64	0	13,028	16,489	0	0	0	0	15,335
65-69	0	0	13,919	10,269	0	12,345	0	12,117
70-74	0	0	11,710	11,979	11,184	4,402	0	11,153
75-79	0	0	1,378	14,921	8,608	0	7,049	10,105
80-84	0	0	0	0	9,679	11,523	0	10,048
85+	0	0	0	0	0	9,624	6,543	7,863
ALL	0	13,028	13,289	11,663	9,730	9,524	6,644	10,992

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	0	26,056	186,046	186,608	126,490	57,144	33,220	615,552

DULUTH TEACHERS' RETIREMENT FUND**DISABILITY RETIREMENTS AS OF JUNE 30, 1999**

Age	Years Disabled							ALL
	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	0	0	0	0	0
50-54	0	1	1	1	0	0	0	3
55-59	0	2	1	1	0	0	0	4
60-64	0	2	0	0	0	0	0	2
65-69	0	0	1	0	0	1	0	2
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	5	3	2	0	1	0	11

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	0	0	0	0	0
50-54	0	9,833	19,017	2,361	0	0	0	10,404
55-59	0	3,375	12,997	9,814	0	0	0	7,390
60-64	0	12,533	0	0	0	0	0	12,533
65-69	0	0	17,850	0	0	5,936	0	11,893
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	8,330	16,621	6,088	0	5,936	0	9,966

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED

Age	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	ALL
All	0	41,650	49,863	12,176	0	5,936	0	109,626

TABLE 7

Duluth Teachers' Retirement Fund

Reconciliation Of Members

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 1998	1,437	155	563
B. ADDITIONS	267	111	0
C. DELETIONS			
1. Service Retirement	(42)	(2)	0
2. Disability	(3)	0	0
3. Death	0	0	0
4. Terminated - Deferred	(111)	0	0
5. Terminated - Refund	(34)	(107)	0
6. Terminated - Other Non-Vested	0	0	0
7. Returned as Active	0	(16)	0
8. Transferred to Other Fund	0	0	0
D. DATA ADJUSTMENTS	(5)	24	(24)
Vested	978		
Non-Vested	531		
E. TOTAL ON JUNE 30, 1999	1,509	165	539

	Recipients		
	Retirement Annuitants	Disabled	Survivors
A. ON JUNE 30, 1998	849	11	50
B. ADDITIONS	48	3	4
C. DELETIONS			
1. Service Retirement	0	0	0
2. Death	(29)	0	0
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	4	(3)	2
E. TOTAL ON JUNE 30, 1999	872	11	56

TABLE 8

Duluth Teachers' Retirement Fund

Actuarial Balance Sheet*(dollars in thousands)*

JULY 1, 1999

A. CURRENT ASSETS (TABLE 1, E6)				\$218,698
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)				\$23,531
2. Present Value of Future Normal Costs				36,332
3. Total Expected Future Assets				<u>\$59,863</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				<u>\$278,561</u>
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>		<u>Total</u>
1. Benefit Recipients				
a. Retirement Annuities		\$112,621		\$112,621
b. Disability Benefits		975		975
c. Surviving Spouse and Child Benefits		6,035		6,035
2. Deferred Retirements with Future Augmentation		4,871		4,871
3. Former Members without Vested Rights		437		437
4. Active Members				
a. Retirement Annuities	427	78,120		78,547
b. Disability Benefits	1,835	0		1,835
c. Survivor's Benefits	1,158	0		1,158
d. Deferred Retirements	47	2,658		2,705
e. Refund Liability Due to Death or Withdrawal	0	601		601
5. Total Current Benefit Obligations	<u>\$3,467</u>	<u>\$206,318</u>		<u>\$209,785</u>
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$47,087</u>
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$256,872</u>
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				(\$8,913)
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				(\$21,689)

Duluth Teachers' Retirement Fund

**Determination Of Unfunded Actuarial Accrued Liability (UAAL)
And Supplemental Contribution Rate**
(dollars in thousands)

JULY 1, 1999

	Actuarial Present Value of Projected Benefits (1)	Actuarial Present Value of Future Normal Costs (2)	Actuarial Accrued Liability (3)=(1)-(2)
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$121,543	\$29,688	\$91,855
b. Disability Benefits	3,043	1,141	1,902
c. Survivor's Benefit	1,862	698	1,164
d. Deferred Retirements	4,122	3,168	954
e. Refunds Due to Death or Withdrawal	1,363	1,637	(274)
f. Total	<u>\$131,933</u>	<u>\$36,332</u>	<u>\$95,601</u>
2. Deferred Retirements With Future Augmentation	4,871		4,871
3. Former Members Without Vested Rights	437		437
4. Annuitants in MPRIF	0		0
5. Recipients Not in MPRIF	<u>119,631</u>		<u>119,631</u>
6. Total	<u>\$256,872</u>	<u>\$36,332</u>	<u>\$220,540</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$220,540
2. Current Assets (Table 1, E6)			<u>218,698</u>
3. UAAL (B1-B2)			<u>\$1,842</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$785,958
2. Supplemental Contribution Rate (B3/C1)			0.23%

Duluth Teachers' Retirement Fund

Changes In Unfunded Actuarial Accrued Liability (UAAL)
(dollars in thousands)

YEAR ENDING JUNE 30, 1999

A. UAAL AT BEGINNING OF YEAR	\$9,596
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$4,300
2. Contribution	(6,139)
3. Interest on A, B1 and B2	<u>738</u>
4. Total (B1+B2+B3)	<u>(\$1,101)</u>
C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$8,495
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	\$3,104
2. Investment Return*	(12,986)
3. MPRIF Mortality	0
4. Mortality of Other Benefit Recipients	3,125
5. Other Items	<u>104</u>
6. Total	<u>(\$6,653)</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	\$1,842
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	<u>0</u>
H. UAAL AT END OF YEAR (E+F+G)	<u><u>\$1,842</u></u>

* Gross asset gain of \$20,332 offset by \$7,346 of excess assets allocated for 1/1/2000
'excess earnings' COLA to existing retirees and beneficiaries.

Duluth Teachers' Retirement Fund

Determination Of Contribution Sufficiency*(dollars in thousands)*

JULY 1, 1999

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	5.50%	\$2,928
2. Employer Contributions	5.79%	3,082
3. Additional State Contribution*	0.91%	486
4. Total	12.20%	\$6,496
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	6.74%	\$3,589
b. Disability benefits	0.24%	129
c. Survivors	0.15%	82
d. Deferred Retirement Benefits	0.73%	387
e. Refunds Due to Death or Withdrawal	0.33%	175
f. Total	8.19%	\$4,362
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	0.23%	122
3. Allowance for Expenses	0.74%	394
4. Total	9.16%	\$4,878
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	3.04%	\$1,618

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1999 is \$53,229.

* Additional State Contribution is a level dollar amount which implies a decreasing percentage of payroll.

Duluth Teachers' Retirement Fund

Summary of Actuarial Assumptions and Methods

<i>Interest:</i>	Pre-Retirement: 8.5% per annum Post-Retirement: 8.5% per annum
<i>Salary Increases:</i>	Graded from 8.0% to 5.25%. The graded rates consist of a 5% inflation component and varying levels of merit and productivity increases.
<i>Mortality:</i>	Pre-Retirement: Male - 1983 GAM (Males -4) Female - 1983 GAM (Females -3) Post-Retirement: Male - 1983 GAM (Males -2) Female - 1983 GAM (Females -1) Post-Disability: Male - 1977 RRB Female - 1977 RRB
<i>Retirement Age:</i>	Age-related from 15% to 80% for the old plan and age-related from 10% to 80% for the new plan. In addition, 40% of the Members are assumed to retire each year that they are eligible for Rule of 90.
<i>Separation:</i>	Graded rates shown in rate table.
<i>Disability:</i>	Rates as shown in rate table.
<i>Expenses:</i>	Prior year administrative expenses expressed as percentage of prior year payroll.
<i>Return of Contributions:</i>	All employees withdrawing after becoming eligible for a deferred benefit were assumed to take the larger of their contributions accumulated with interest or the value of their deferred benefit.

<i>Family Composition:</i>	80% of Members are assumed to be married. Female is three years younger than male.				
<i>Social Security:</i>	N/A				
<i>Benefit Increases After Retirement:</i>	N/A				
<i>Special Consideration:</i>	<p>Annual 2% increase for annuitants is accounted for by using a 6.5% post-retirement interest rate. Members in the Old Plan are assumed to receive their retirement benefits from the New Plan. Members who terminated under the Old Plan are assumed to take refund under the New Plan.</p> <p>Married Members assumed to elect subsidized joint and survivor form of annuity as follows:</p> <table> <tr> <td>Males -</td><td>30% elect 50% J&S option 55% elect 100% J&S option</td></tr> <tr> <td>Females -</td><td>30% elect 50% J&S option 20% elect 100% J&S option</td></tr> </table>	Males -	30% elect 50% J&S option 55% elect 100% J&S option	Females -	30% elect 50% J&S option 20% elect 100% J&S option
Males -	30% elect 50% J&S option 55% elect 100% J&S option				
Females -	30% elect 50% J&S option 20% elect 100% J&S option				
<i>Actuarial Cost Method:</i>	Entry Age Normal Actuarial Cost Method with normal costs expressed as a level percentage of earnings. Under this method, Actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability.				
<i>Asset Valuation Method:</i>	Cost Value plus one-third Unrealized Gains or Losses.				
<i>Payment on the Unfunded Actuarial Accrued Liability:</i>	A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5% per annum.				

TABLE 12
(Continued)

Duluth Teachers' Retirement Fund

Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

<u>Age</u>	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>		<u>Salary Increases</u>
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Old</u>	<u>New</u>	
20	3	2	2,000	1,500	4	4	0	0	8.00%
21	3	2	1,931	1,360	4	4	0	0	8.00
22	4	2	1,731	1,220	4	4	0	0	8.00
23	4	2	1,532	1,080	5	5	0	0	7.90
24	4	2	1,332	940	5	5	0	0	7.80
25	4	2	1,132	800	5	5	0	0	7.70
26	4	2	932	660	5	5	0	0	7.60
27	4	2	732	520	5	5	0	0	7.50
28	4	3	703	500	5	5	0	0	7.40
29	5	3	673	480	5	5	0	0	7.30
30	5	3	643	460	6	6	0	0	7.20
31	5	3	612	440	6	6	0	0	7.10
32	5	3	582	420	6	6	0	0	7.00
33	6	3	552	400	6	6	0	0	6.90
34	6	4	522	380	6	6	0	0	6.80
35	6	4	491	360	6	6	0	0	6.70
36	7	4	461	340	7	7	0	0	6.60
37	7	4	430	320	7	7	0	0	6.50
38	8	5	409	300	8	8	0	0	6.40
39	9	5	389	280	8	8	0	0	6.30
40	9	5	368	260	8	8	0	0	6.20
41	10	6	347	240	9	9	0	0	6.10
42	10	6	325	220	9	9	0	0	6.00
43	11	7	304	210	10	10	0	0	5.90
44	12	7	282	200	10	10	0	0	5.80
45	14	8	260	190	11	11	0	0	5.70
46	15	8	237	180	12	12	0	0	5.60
47	17	9	214	170	13	13	0	0	5.50
48	19	10	191	160	14	14	0	0	5.45
49	22	11	167	150	16	16	0	0	5.40

TABLE 12
(Continued)

Duluth Teachers' Retirement Fund

Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

<u>Age</u>	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>		<u>Salary Increases</u>
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Old</u>	<u>New</u>	
50	25	12	143	140	17	17	0	0	5.35%
51	28	14	118	118	19	19	0	0	5.30
52	31	15	92	92	22	22	0	0	5.25
53	35	16	67	67	26	26	0	0	5.25
54	39	18	40	40	30	30	0	0	5.25
55	43	19	13	13	36	36	1,500	1,000	5.25
56	48	21	0	0	41	41	1,500	1,000	5.25
57	52	23	0	0	47	47	1,500	1,000	5.25
58	57	25	0	0	52	52	1,500	1,000	5.25
59	61	28	0	0	58	58	1,500	1,000	5.25
60	66	31	0	0	63	63	1,500	1,000	5.25
61	71	34	0	0	69	69	4,000	2,000	5.25
62	77	38	0	0	76	76	4,000	2,000	5.25
63	84	42	0	0	84	84	4,000	2,000	5.25
64	92	47	0	0	93	93	4,000	2,000	5.25
65	101	52	0	0	0	0	4,000	2,000	5.25
66	111	58	0	0	0	0	5,000	4,000	5.25
67	124	64	0	0	0	0	5,000	4,000	5.25
68	139	71	0	0	0	0	5,000	4,000	5.25
69	156	78	0	0	0	0	5,000	4,000	5.25
70	176	87	0	0	0	0	5,000	4,000	5.25

TABLE 14

Duluth Teachers' Retirement Fund

SCHEDULE OF FUNDING PROGRESS

(dollars in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (A)	Actuarial Accrued Liability (AAL) (B)	Unfunded AAL (UAAL) (B - A)	Funded Ratio (A)/(B)	Actual Covered Payroll (Previous FY) (C)	UAAL as % of Covered Payroll (B - A) / (C)
07/01/91	105,087	117,582	12,495	89.37%	42,297	29.54%
07/01/92	116,492	124,140	7,648	93.84%	42,884	17.83%
07/01/93	130,856	132,700	1,844	98.61%	43,282	4.26%
07/01/94	133,632	137,042	3,410	97.51%	43,109	7.91%
07/01/95	142,852	173,965	31,113	82.12%	46,528	66.87%
07/01/96	157,007	189,518	32,511	82.85%	44,870	72.46%
07/01/97	170,059	197,820	27,761	85.97%	46,770	59.36%
07/01/98	187,482	197,078	9,596	95.13%	47,064	20.39%
07/01/99	218,698	220,540	1,842	99.16%	52,176	3.53%

TABLE 15

Duluth Teachers' Retirement Fund
SCHEDULE OF EMPLOYER CONTRIBUTIONS
(dollars in thousands)

Year Ended June 30	Actuarially Required Contribution Rate (A)	Actual Covered Payroll (B)	Actual Member Contributions (C)	Annual Required Contribution [(A) x (B)] - (C)	Actual Employer Contribution*	Percentage Contributed
1991	10.70%	42,297	2,043	2,483	2,449	98.63%
1992	11.09%	42,884	2,124	2,632	2,483	94.34%
1993	11.42%	43,282	2,126	2,817	2,506	88.96%
1994	10.21%	43,109	2,230	2,171	2,496	114.97%
1995	10.36%	46,528	2,144	2,676	2,694	100.67%
1996	13.23%	44,870	2,570	3,366	2,598	77.18%
1997	13.60%	46,770	2,644	3,717	2,708	72.85%
1998	12.87%	47,064	2,664	3,393	3,211	94.64%
1999	10.24%	52,176	3,118	2,225	3,507	157.62%

* Includes contributions from other sources (if applicable).

TABLE 3A
OLD

DULUTH TEACHERS' RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1999

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	1	7	5	0	0	13
45-49	0	1	1	2	19	45	23	0	91
50-54	0	0	0	0	18	39	72	19	148
55-59	0	1	0	1	8	24	31	47	112
60-64	0	0	0	0	3	12	6	5	26
65+	0	0	0	0	0	2	0	1	3
ALL	0	2	1	4	55	127	132	72	393

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	35,121	53,262	49,605	0	0	50,460
45-49	0	48,871	41,077	36,805	51,019	49,593	51,843	0	50,077
50-54	0	0	0	0	50,016	49,326	51,872	52,214	51,019
55-59	0	707	0	23,984	47,246	51,111	50,079	53,848	51,006
60-64	0	0	0	0	51,701	44,370	57,158	59,015	50,983
65+	0	0	0	0	0	26,465	0	31,417	28,116
ALL	0	24,789	41,077	33,179	50,465	48,941	51,686	53,464	50,601

PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE

Age	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
All	0	49	41	132	2,775	6,215	6,822	3,849	19,886

**TABLE 4A
OLD**

DULUTH TEACHERS' RETIREMENT FUND

AS OF JUNE 30, 1999

Age	Years Retired							ALL
	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	1	0	0	0	0	1
50-54	1	1	1	0	0	0	0	3
55-59	22	19	0	0	0	0	0	41
60-64	5	43	37	0	0	0	0	85
65-69	0	5	32	21	0	0	0	58
70-74	0	0	1	33	28	1	0	63
75-79	0	0	0	13	40	11	1	65
80-84	0	0	0	1	30	21	5	57
85+	0	0	0	0	0	31	47	78
ALL	28	68	72	68	98	64	53	451

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	10,265	0	0	0	0	10,265
50-54	19,512	7,796	15,223	0	0	0	0	14,177
55-59	14,049	17,114	0	0	0	0	0	15,469
60-64	16,110	11,205	12,813	0	0	0	0	12,194
65-69	0	4,703	12,243	6,831	0	0	0	9,634
70-74	0	0	3,397	9,730	4,938	4,933	0	7,424
75-79	0	0	0	8,904	8,474	4,720	5,900	7,885
80-84	0	0	0	984	7,234	7,027	5,490	6,895
85+	0	0	0	0	0	7,136	9,470	8,542
ALL	14,612	12,328	12,427	8,548	7,084	6,651	9,027	9,583

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	ALL
All	409	838	894	581	694	425	478	4,321

**TABLE 5A
OLD**

DULUTH TEACHERS' RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1999

Age	Years Since Death							ALL
	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	1	0	0	0	1
50-54	0	0	0	0	0	0	0	0
55-59	0	0	1	0	0	0	0	1
60-64	0	0	1	0	0	0	0	1
65-69	0	0	2	0	0	1	0	3
70-74	0	0	0	3	4	1	0	8
75-79	0	0	0	2	4	0	1	7
80-84	0	0	0	0	3	1	0	4
85+	0	0	0	0	0	3	4	7
ALL	0	0	4	6	11	6	5	32

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	3,705	0	0	0	3,705
50-54	0	0	0	0	0	0	0	0
55-59	0	0	13,990	0	0	0	0	13,990
60-64	0	0	20,671	0	0	0	0	20,671
65-69	0	0	10,711	0	0	12,345	0	11,256
70-74	0	0	0	9,261	11,184	4,402	0	9,615
75-79	0	0	0	14,838	8,138	0	7,049	9,897
80-84	0	0	0	0	8,019	11,523	0	8,895
85+	0	0	0	0	0	9,624	6,543	7,863
ALL	0	0	14,021	10,194	9,213	9,524	6,644	9,655

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

Age	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	ALL
All	0	0	56,084	61,164	101,343	57,144	33,220	308,960

TABLE 6A
OLD

DULUTH TEACHERS' RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1999

Age	Years Disabled							ALL
	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	1	0	0	0	1
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	1	0	1
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	0	0	1	0	1	0	2

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	9,814	0	0	0	9,814
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	5,936	0	5,936
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	0	0	9,814	0	5,936	0	7,875

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED

Age	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	ALL
All	0	0	0	9,814	0	5,936	0	15,750

Duluth Teachers' Retirement Fund

Determination Of Contribution Sufficiency
(dollars in thousands)

JULY 1, 1999

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	5.50%	\$1,149
2. Employer Contributions	5.79%	1,209
3. Total	<u>11.29%</u>	<u>\$2,358</u>
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	6.27%	\$1,309
b. Disability benefits	0.19%	40
c. Survivors	0.14%	30
d. Deferred Retirement Benefits	0.96%	200
e. Refunds Due to Death or Withdrawal	<u>0.38%</u>	<u>80</u>
f. Total	<u>7.94%</u>	<u>\$1,659</u>

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1999 is \$20,885.

Duluth Teachers' Retirement Fund
Summary of Plan Provisions

GENERAL

<i>Eligibility:</i>	A licensed teacher who is employed by the Duluth Public Schools, and eligible licensed staff at Lake Superior College, who have elected to retain their membership in the DTRFA. Also includes any employees of the Retirement Fund and certain part-time employees licensed by the State Department of Education. Employees in the Old Plan are those first hired before July 1, 1981.
<i>Contributions:</i>	
<i>Member:</i>	5.5% of salary.
<i>Employer:</i>	5.79% of salary. (In addition, the State will contribute \$486,000 to the DTRFA plans each year on October 1.)
<i>Credited Service:</i>	Earned while employed in a covered position and employee contributions are deducted. Credit is granted for service less than a legal school year on a pro rata basis.
<i>Salary:</i>	Annual contract salary.
<i>Average Salary:</i>	Average of the five highest years of annual salary.

RETIREMENT

Normal Retirement Benefit:

<i>Eligibility:</i>	Age 60 and one year of Credited Service.
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Amount: The greater of
1.45% of Average Salary for each year of Credited Service
or
the New Plan Benefit.

Early Retirement Benefit:

Eligibility: Age 55 and five years of Credited Service.
Rule of 90: Age plus Credited Service totals 90.

Amount: The greater of
1.45% of Average Salary for each year of Credited
Service with reduction of 0.25% for each month the
Member is under age 60. No reduction if age plus years
of Credited Service totals 90.
or
the New Plan Benefit.

Form of Payment: Life annuity. Actuarially equivalent options are:

5, 10, 15 or 20 year certain and life.
50% or 100% joint and survivor with bounce back
feature without additional reduction.
Other equivalent options approved by the Board.

Benefit Increases: Annual Cost-of-Living Adjustment (COLA):
Increase all benefits by 2% each January 1. An additional
increase will be allowed when the 5-year average rate of
return of the fund exceeds the interest rate assumption of
the plan, currently 8.5%. To be eligible for a COLA, a
retiree or beneficiary must have received a payment for at
least 12 months as of the adjustment date.

Members retired under laws in effect before June 30, 1971 receive an additional lump-sum payment each year. In 1989 this lump-sum payment is the greater of \$25 times each full year of Credited Service or the difference between \$400 times each full year of Credited Service and the sum of the benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the fiscal year July 1, 1988 through June 30, 1989. In each following year, the lump sum will increase by the same increase that is applied to regular annuities.

DISABILITY

Disability Benefit:

<i>Eligibility:</i>	Totally and permanently disabled as a teacher before the age of 60 with five years of Credited Service.
<i>Amount:</i>	Normal Retirement Benefit based on Credited Service and Average Salary at disability date without reduction for early commencement. Amount is reduced for Workers' Compensation. Payment stops at age 60 or earlier if disability ceases or death occurs.
<i>Form of Payment:</i>	Same as for retirement.
<i>Benefit Increases:</i>	Same as for retirement.

DEATH

Return of Contributions I:

<i>Eligibility:</i>	Death while active.
<i>Amount:</i>	Two times regular contributions accumulated with 5% interest if death occurred before May 16, 1989 or 6% interest if death occurred on or after May 16, 1989.

Return of Contributions II:

<i>Eligibility:</i>	Death of Member who terminated employment after 10 years of service.
<i>Amount:</i>	Regular contributions accumulated with 5% interest if death occurred before May 16, 1989 or 6% interest if death occurred on or after May 16, 1989.

Return of Contributions III:

<i>Eligibility:</i>	Death of a retired or disabled Member whose benefits have commenced in the form of a life annuity or the death of a survivor of a retired or disabled Member under a joint and survivor option.
<i>Amount:</i>	Excess of regular contributions accumulated with 5% interest if death occurred before May 16, 1989 or 6% interest if death occurred on or after May 16, 1989 over total benefits paid.

Surviving Spouse Benefit

Optional Annuity I

<i>Eligibility:</i>	Death of active Member with 10 years of Credited Service.
<i>Amount:</i>	In lieu of Return of Contributions I, an annuity to surviving spouse equivalent to 120% of the value of what would have been refunded.

Optional Annuity II

<i>Eligibility:</i>	Death of active Member who is age 50 with 10 years of Credited Service. If the Member dies before age 55, benefits commence when Member would have been age 55.
<i>Amount:</i>	In lieu of Return of Contributions I or Surviving Spouse Optional Annuity I, spouse receives survivor portion of the joint and 100% contingent annuity the Member could have elected if terminated.

TERMINATION

Refund of Employee Contributions:

<i>Eligibility:</i>	Termination from teaching service.
<i>Amount:</i>	Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund if the Member has 10 years of Credited Service.

Deferred Annuity:

Eligibility: Ten years of Credited Service.

Amount: Benefit computed under law in effect at termination and increased by the following annual percentage: 3% until January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

**TABLE 3B
NEW**

DULUTH TEACHERS' RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1999

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	25	14	0	0	0	0	0	0	39
25-29	76	74	10	0	0	0	0	0	160
30-34	23	43	39	6	0	0	0	0	111
35-39	18	37	37	34	3	0	0	0	129
40-44	28	44	48	58	12	0	0	0	190
45-49	63	52	42	78	23	1	0	0	259
50-54	18	29	25	48	16	0	0	0	136
55-59	15	10	9	18	8	0	0	0	60
60-64	1	5	7	5	4	0	0	0	22
65+	5	4	0	1	0	0	0	0	10
ALL	272	312	217	248	66	1	0	0	1,116

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	3,688	25,122	0	0	0	0	0	0	11,382
25-29	5,302	25,791	31,872	0	0	0	0	0	16,439
30-34	4,941	28,105	32,964	41,086	0	0	0	0	25,714
35-39	3,342	24,763	31,366	45,991	50,759	0	0	0	29,867
40-44	3,404	25,735	32,752	41,385	50,040	0	0	0	30,529
45-49	4,627	25,831	36,727	47,406	50,250	53,632	0	0	31,214
50-54	3,926	23,931	36,491	46,381	50,118	0	0	0	34,597
55-59	2,396	13,164	34,513	43,463	46,118	0	0	0	27,158
60-64	1,767	3,001	39,679	34,421	47,089	0	0	0	29,772
65+	6,600	15,872	0	38,993	0	0	0	0	13,548
ALL	4,401	24,887	34,010	44,871	49,511	53,632	0	0	27,590

PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE

Age	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
All	1,197	7,764	7,380	11,128	3,267	53	0	0	30,790

TABLE 4B
NEW

DULUTH TEACHERS' RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1999

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	1	0	0	0	0	0	1
50-54	1	2	0	0	0	0	0	3
55-59	22	24	1	0	0	0	0	47
60-64	8	47	35	0	0	0	0	90
65-69	2	25	92	27	0	0	0	146
70-74	0	3	43	50	5	0	0	101
75-79	0	1	2	23	10	0	0	36
80-84	0	0	1	1	3	0	0	5
85+	0	0	0	0	0	0	0	0
ALL	33	103	174	101	18	0	0	429

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	4,875	0	0	0	0	0	4,875
50-54	1,067	6,470	0	0	0	0	0	4,669
55-59	27,937	22,881	11,506	0	0	0	0	25,006
60-64	24,027	23,120	12,961	0	0	0	0	19,250
65-69	9,536	9,064	15,625	12,052	0	0	0	13,757
70-74	0	16,804	12,371	13,582	10,895	0	0	13,029
75-79	0	26,787	21,672	9,781	13,315	0	0	11,896
80-84	0	0	6,919	8,462	8,527	0	0	8,192
85+	0	0	0	0	0	0	0	0
ALL	25,060	19,004	14,281	12,257	11,845	0	0	15,665

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	826	1,957	2,484	1,237	213	0	0	6,720

DULUTH TEACHERS' RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1999

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	2	3	0	0	0	0	5
65-69	0	0	3	5	0	0	0	8
70-74	0	0	3	3	0	0	0	6
75-79	0	0	1	2	1	0	0	4
80-84	0	0	0	0	1	0	0	1
85+	0	0	0	0	0	0	0	0
ALL	0	2	10	10	2	0	0	24

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	13,028	15,095	0	0	0	0	14,268
65-69	0	0	16,059	10,269	0	0	0	12,440
70-74	0	0	11,710	14,699	0	0	0	13,205
75-79	0	0	1,378	15,004	10,491	0	0	10,469
80-84	0	0	0	0	14,659	0	0	14,659
85+	0	0	0	0	0	0	0	0
ALL	0	13,028	12,997	12,545	12,575	0	0	12,776

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	0	26,056	129,970	125,450	25,150	0	0	306,624

TABLE 6B
NEW

DULUTH TEACHERS' RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1999

Age	Years Disabled							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	1	1	1	0	0	0	3
55-59	0	2	1	0	0	0	0	3
60-64	0	2	0	0	0	0	0	2
65-69	0	0	1	0	0	0	0	1
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	5	3	1	0	0	0	9

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	9,833	19,017	2,361	0	0	0	10,404
55-59	0	3,375	12,997	0	0	0	0	6,582
60-64	0	12,533	0	0	0	0	0	12,533
65-69	0	0	17,850	0	0	0	0	17,850
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	8,330	16,621	2,361	0	0	0	10,430

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	0	41,650	49,863	2,361	0	0	0	93,870

Duluth Teachers' Retirement Fund

Determination Of Contribution Sufficiency
(dollars in thousands)

JULY 1, 1999

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	5.50%	\$1,779
2. Employer Contributions	5.79%	1,873
3. Total	<u>11.29%</u>	<u>\$3,652</u>
 B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	7.05%	\$2,279
b. Disability benefits	0.28%	90
c. Survivors	0.16%	52
d. Deferred Retirement Benefits	0.58%	187
e. Refunds Due to Death or Withdrawal	<u>0.29%</u>	<u>95</u>
f. Total	<u>8.36%</u>	<u>\$2,703</u>

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1999 is \$32,344.

Duluth Teachers' Retirement Fund

Summary of Plan Provisions

GENERAL

<i>Eligibility:</i>	A licensed teacher who is employed by the Duluth Public Schools, and eligible licensed staff at Lake Superior College, who have elected to retain their membership in DTRFA. Also includes any employees of the Retirement Fund and certain part-time employees licensed by the State Department of Education. Employees in the New Plan are those first hired on or after July 1, 1981 including any Old Plan Members who may elect to join any time prior to retirement.
<i>Contributions:</i>	
<i>Member:</i>	5.5% of salary.
<i>Employer:</i>	5.79% of salary. (In addition, the State will contribute \$486,000 to the DTRFA plans each year on October 1.)
<i>Allowable Service:</i>	Earned if the Member is employed in a covered position and employee contributions are deducted. May also include certain part-time service, extended leaves of absence, sabbatical leaves, and military service.
<i>Salary:</i>	Total compensation. Excludes any lump-sum annual leave or sick leave payments and lump-sum payment at separation.
<i>Average Salary:</i>	Average of the five highest successive years of salary. Average Salary is based on all Allowable Service if less than five years.

RETIREMENT***Normal Retirement Benefit:******Eligibility:***

First hired before July 1, 1989:

Age 65 and three years of Allowable Service.

Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.

First hired after June 30, 1989:

The greater of age 65 or the age eligible for full Social Security retirement benefits but not higher than age 66 and three years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service.

Amount:

Hired before July 1, 1989:

The greater of 1.2% of Average Salary for each of the first 10 years of Allowable Service and 1.7% of Average Salary for each subsequent year.

or

1.7% of Average Salary for each year of Allowable Service.

Hired after June 30, 1989:

1.7% of Average Salary for each year of Allowable Service.

Early Retirement Benefit:***Eligibility:***

Hired before July 1, 1989:

Age 55 and three years of Allowable Service.

Any age with 30 years of Allowable Service.

Rule of 90: Age plus Allowable Service totals 90.

Hired after June 30, 1989:

Age 55 and three years of Allowable Service.

Amount:

Hired before July 1, 1989:

The greater of 1.2% of Average Salary for the first 10 years of Allowable Service and 1.7% of Average Salary for each subsequent year with reduction of 0.25% for each month the Member is under age 65 at time of retirement (age 62 if 30 years of Allowable service). No reduction if age plus years of Allowable Service totals 90.

or

1.7% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3% per year and actuarial reduction for each month the Member is under age 65.

Hired after June 30, 1989:

1.7% of Average Salary for each year of Allowable Service with augmentation to the age eligible for full Social Security retirement benefits at 3% per year and actuarial reduction for each month the Member is under the Social Security retirement age.

Form of Payment: Life annuity. Actuarially equivalent options are:

5, 10, 15 or 20 year certain and life.

50% or 100% joint and survivor with bounce back feature without additional reduction.

A larger life annuity before age 62 and reduced thereafter.

Benefit Increases: Annual Cost-of-Living Adjustment (COLA):

Increase all benefits by 2% each January 1. An additional increase will be allowed when the 5-year average rate of return of the fund exceeds the interest rate assumption of the plan, currently 8.5%. To be eligible for a COLA, a retiree or beneficiary must have received a payment for at least 12 months as of the adjustment date.

DISABILITY

Disability Benefit:

Eligibility: Totally and permanently disabled under normal retirement age with three years of Allowable Service. Also, at least two of the years of Allowable Service must have been uninterrupted.

Amount: Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction commencement before retirement age. Benefit is reduced by Workers' Compensation.

Payments may begin 90 days after disability and stops at normal retirement age, or earlier if disability ceases or death occurs. Benefits paid while partially employed may be reduced.

Form of Payment: Same as for retirement.

Benefit Increases: Same as for retirement.

Retirement After Disability:

Eligibility: Normal retirement age if still totally and permanently disabled.

Amount: Optional annuity continues. Otherwise the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarial equivalent optional annuity.

Benefit Increase: Same as for retirement.

DEATH

Surviving Spouse Optional Annuity:

<i>Eligibility:</i>	Member who dies before retirement benefits commence with three years of Allowable Service.
<i>Amount:</i>	Survivor's payment of the 100% joint and survivor benefit or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer.
<i>Benefit Increases:</i>	Same as for retirement.

Refund of Member's Contributions:

<i>Eligibility:</i>	Member or former Member dies before receiving any disability or retirement benefits and survivor benefits are not payable.
<i>Amount:</i>	Member's contributions with 5% interest if death occurred before May 16, 1989 or 6% interest if death occurred on or after May 16, 1989.

TERMINATION

Refund of Member's Contributions:

<i>Eligibility:</i>	Termination from teaching service.
<i>Amount:</i>	Member's contributions with 5% interest if termination occurred before May 16, 1989 and 6% interest if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund.

Deferred Annuity:

Eligibility: Three years of Allowable Service.

Amount: Benefit computed under law in effect at termination and increased by the following annual percentage: 3% until January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

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November 11, 1999


Mr. Lawrence A. Martin
Executive Director
Minnesota Legislative Commission
on Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155-1201

Dear Larry:

Enclosed are two bound and one loose copy of the Duluth Teachers Retirement Fund actuarial valuation as of July 1, 1999. Other copies have been sent in accordance with our contract.

If you have any questions regarding our report, please do not hesitate to call.

Sincerely,


Thomas K. Custis, F.S.A.
Consulting Actuary

TKC/bh

Enclosure

cc: J. Michael Stoffel, Executive Secretary DTRFA (2)
Pamela Wheelock, Commissioner of Finance (2)
Jim Nobles, Legislative Auditor
Legislative Reference Library (6) —

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